

WHAT IS CLAIMED IS:

1. A semiconductor device comprising:

a semiconductor substrate;

an isolation insulating film selectively located in a surface of said
5 semiconductor substrate; and

first and second transistors located respectively on first and second active
regions which are defined by said isolation insulating film,

said first transistor having a first gate insulating film of a first thickness which
is selectively located on said first active region,

10 said second transistor having a second gate insulating film of a second
thickness which is selectively located on said second active region,

said first thickness being greater than said second thickness,

said isolation insulating film having a recessed portion in an edge portion on
the side of either said first or second active region,

15 said recessed portion being located around either said first or second active
region,

a depth of said recessed portion being defined as a depth at which threshold
voltage of either said first or second transistor is substantially constant according to a
characteristic of variation in threshold voltage of either said first or second transistor with
20 respect to variation in depth of said recessed portion.

2. The semiconductor device according to claim 1, wherein

a depth at which threshold voltage of either said first or second transistor is
substantially constant is a depth at which a range of variation in threshold voltage of
25 either said first or second transistor is 5 to 10% of a maximum range of variation

according to said characteristic of variation.

3. The semiconductor device according to claim 1, wherein

a depth of said recessed portion is defined as a vertical height between a main
5 surface of said first active region and a deepest part of said recessed portion, and is not
less than 10 nm.

4. A semiconductor device comprising:

a semiconductor substrate;

10 an isolation insulating film selectively located in a surface of said
semiconductor substrate; and

first and second transistors located respectively on first and second active
regions which are defined by said isolation insulating film,

said first transistor having a first gate insulating film of a first thickness which
15 is selectively located on said first active region,

said second transistor having a second gate insulating film of a second
thickness which is selectively located on said second active region,

said first thickness being greater than said second thickness,

said isolation insulating film having a recessed portion in an edge portion on
20 the side of said first active region,

said recessed portion being located around said first active region.

5. The semiconductor device according to claim 4, wherein

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25 a depth of said recessed portion is defined as a vertical height between a main
surface of said first active region and a deepest part of said recessed portion, and is not

A\ less than 10 nm.

6. The semiconductor device according to claim 5, wherein

5 said isolation insulating film has another recessed portion shallower than said recessed portion located around said first active region, in an edge portion on the side of said second active region,

said shallower recessed portion is located around said second active region.

7. A semiconductor device comprising:

10 a semiconductor substrate;

an isolation insulating film selectively located in a surface of said semiconductor substrate; and

a first transistor located on a first active region defined by said isolation insulating film,

15 said first transistor having a first gate insulating film of a first thickness which is selectively located on said first active region,

said isolation insulating film having a first recessed portion in an edge portion on the side of said first active region, said first recessed portion being located around said first active region,

20 a depth of said first recessed portion being defined as a vertical height between a main surface of said first active region and a deepest part of said first recessed portion and being not less than 10 nm.

8. The semiconductor device according to claim 7, further comprising:

25 a second transistor located on a second active region which is defined by said

isolation insulating film as being different from said first active region in the surface of said semiconductor substrate,

said second transistor having a second gate insulating film of a second thickness which is selectively located on said second active region,

5 said first thickness being greater than said second thickness,

said isolation insulating film having a second recessed portion in an edge portion on the side of said second active region, said second recessed portion being located around said second active region,

10 a depth of said second recessed portion being defined as a vertical height between a main surface of said second active region and a deepest part of said second recessed portion and being not less than 10 nm.

9. The semiconductor device according to claim 7, further comprising:

15 a second transistor located on a second active region which is defined by said isolation insulating film as being different from said first active region in the surface of said semiconductor substrate,

said second transistor having a second gate insulating film of a second thickness which is selectively located on said second active region,

said first thickness being greater than said second thickness,

20 said isolation insulating film having a second recessed portion in an edge portion on the side of said second active region, said second recessed portion being located around said second active region.

10. The semiconductor device according to claim 1, wherein

25 said first transistor includes a transistor forming an input/output circuit, and

said second transistor includes a transistor forming an analog circuit.

11. The semiconductor device according to claim 7, wherein

said first transistor includes a transistor forming an input/output circuit, and

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said second transistor includes a transistor forming an analog circuit.

12. The semiconductor device according to claim 6, wherein

said first transistor includes a transistor forming an input/output circuit, and

said second transistor includes a transistor forming an analog circuit.

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13. The semiconductor device according to claim 9, wherein

said first transistor includes a transistor forming an input/output circuit, and

said second transistor includes a transistor forming an analog circuit.